

FISHERIES MANAGEMENT

Project title: LeHardy's Rapids Yellowstone Cutthroat Egg Collection for the Development of Species-specific Broodstock for Drainage Restoration

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Additional investigator(s): Joe Gillis, Steve Sharon, Dave Miller, Paul Kretschmar

Objective: To collect and fertilize eggs for Yellowstone cutthroat trout pairs to develop a captured broodstock program. Eggs will be collected from the population that inhabits the Yellowstone Lake to the upper falls. Fish management at Yellowstone has also asked for egg collection on various other tributaries to aid in whirling disease research. The primary capture location will be LeHardy's Rapids, although other sites within the drainage may be considered if catch rates do not meet objectives. The original objective each year was to collect a partial spawn from a minimum of 25 pairs for four consecutive years (1993-1996) for the purpose of stock recruitment of a broodstock to be held at Clark's Fork Fish Hatchery. This broodstock will be used for drainage restoration of the endemic range of the Yellowstone River in Wyoming and also assist in the restoration projects in Montana.

Findings: We have had excellent cooperation with YNP personnel in accomplishing our goals with this project. This is the last anticipated year of the consecutive year collection process. Year 2000 collection will assure the broodstock adequate year classes for its development. We will then return to YNP every 3–5 years to infuse new genetic material from the LeHardy's rapids stock into our Clark's Fork Fish Hatchery Stock to assure good genetic representation of this stock.

Project title: Collection of Gametes from Wildstock Lewis Lake Lake Trout to Establish a Captive Broodstock to Support Lake Trout Restoration in the Great Lakes

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Additional investigator(s): Ed Stege

Objective: The objective of this research project was to capture and spawn a minimum of 50 pairs of Lewis

Lake lake trout in calendar year 2000. Fertilized eggs were to be transported to the Saratoga National Fish Hatchery, Wyoming, for the establishment of a captive broodstock. Progeny from the Lewis Lake captive broodstock at Saratoga NFH will then be used for lake trout restoration/recovery programs in the Great Lakes. This project is part of an ongoing effort that was initiated in 1983 with respect to utilizing Lewis Lake lake trout for lake trout restoration in the Great Lakes. Genetic considerations mandate an infusion of wild genes into captive broodstocks at regular intervals to insure the genetic integrity of broodstock populations.

Findings: Adult lake trout were captured with the assistance of Yellowstone National Park personnel using gillnets set at near-shore spawning locations. A total of 68 paired matings were effected. Eggs from five females were split and fertilized individually with milt from different males, resulting in a total of 85 genetically distinct egg lots. Upon completion of spawning, all lake trout were returned to Lewis Lake. All egg lots were transported to the Saratoga NFH and held in quarantine until completion of a complete disease evaluation.

Project title: Cutthroat Trout Egg and Sperm Collection

Principal investigator: Mr. Daryl Hodges
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Additional investigator(s): Montana Fish, Wildlife and Parks personnel

Objective: To successfully manage Montana's fishery resources, we need to maintain our hatchery broodstocks with a wide genetic diversity. These broodstocks should mirror their wild ancestors as closely as possible. The original gametes for our Yellowstone cutthroat trout Broodstock came from McBride Lake in Yellowstone National Park in 1969. The last time gametes were taken from the lake to supplement the broodstock was 1987. To once again infuse our broodstock with new genetic material, we will collect gametes from Yellowstone cutthroat trout in McBride Lake for three consecutive years beginning in 2000. We will take gametes from 10 pair of fish each year. Health and genetic samples will be taken from the fish gametes are taken from.

Findings: Due to the failure to get approval for lethally sampling 60 fish for genetic testing and disease certification, eggs were not collected in 2000. FWP Fisheries Biologists, hatchery employees and Fish Health Biologists are prepared to go to McBride Lake in the spring of 2001 and the following two years if the needed approval is received.

**Project title: The Spatial and Temporal Spawning Distributions
of Yellowstone Cutthroat and Rainbow Trout
in the Upper Yellowstone River Drainage**

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Objective: This research project will radio-track spawning Yellowstone cutthroat trout (YCT), rainbow trout, and hybrids of the two species to determine where and when these three groups spawn.

Findings: Radio-tags were implanted into 50 fish during April 4 and 5, 2001. Fish are being relocated on a weekly basis. Some rainbow trout and hybrids have moved into tributaries (outside park) to spawn. Fish that were tagged in the Corwin Springs, Montana area of the Yellowstone River may move upriver or into tributaries that are accessible in Yellowstone Park.